

System Control CSCI

*Operations Configuration  
Manager (OPS CM) CSC*

Thor Requirements

Design Panel 2 Review

84K00570-010 Rev. B

**November 6, 1997**

# OPSCM Software Requirements

## 1. Operations Configuration Manager CSC

### 1.1 Operations Configuration Manager (OPS CM) CSC Introduction

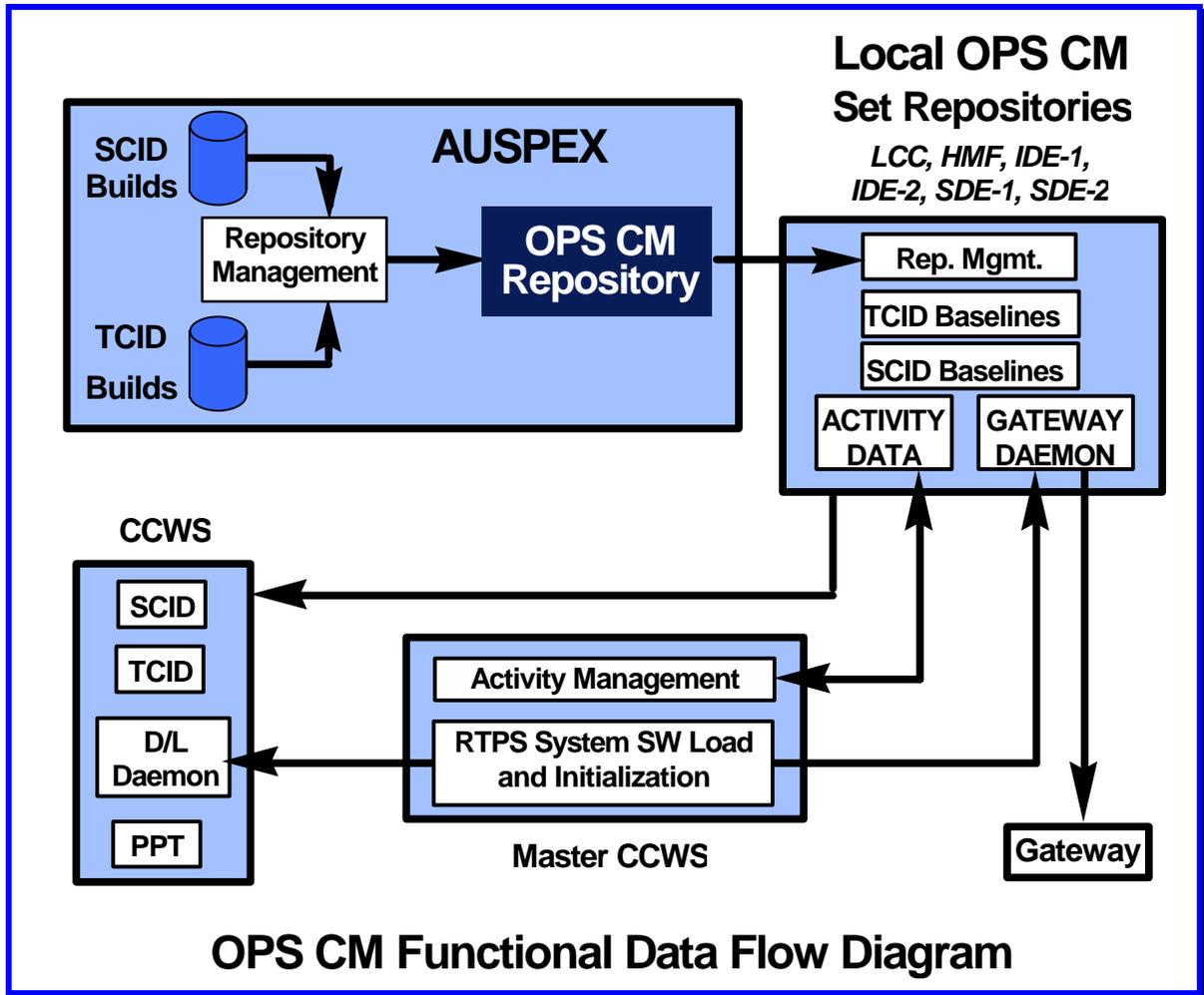
#### 1.1.1 OPS CM Overview

The Operations Configuration Manager (OPS CM) CSC provides the capability to [load and](#) configure DDPs, CCPs, Gateways, and CCWSs in order to support CLCS operations. This configuration includes downloading SCID and TCID software baselines and initializing this software. OPS CM also supports the creation and management of activities within the CLCS. -

OPS CM can be viewed as having the following functional data flow. A Repository Manager checks SCID and TCID Builds into the OPS CM Repository on the Auspex server. These build baselines are distributed to the [local](#) OPS CM Set Repositories in the SDE, ~~and~~ IDE, [or other](#) environments [using the repository management tools on the local cm-servers](#). A [user at the](#) Master ~~Function~~ CCWS handles activity management, subsystem loading and subsystem initialization / termination for the DDPs, CCPs, Gateways and other CCWS s. A detailed data flow diagram is shown in section 1.2.5.

#### 1.1.2 OPS CM Operational Description

OPS CM provides a set of integrated tools to assist in the end-to-end movement of system software, test applications and test products. OPS CM provides [a set of repository management](#) tools to bring in new baselines and transport them to the various RTPS Subsystems. Baselines for system software and test software are associated [with an activity](#) ~~to a set of target subsystems~~ using the Activity Manager function of OPS CM. Once these activities are defined, the OPS CM download function [allocates a set of target subsystems and](#) distributes these baselines, as defined by the activity definitions, to the target subsystems and initializes the software. [The RTPS platforms each contain a OPS CM daemon process which communicates with the download / initialize / terminate software on the Master CCWS.](#) OPS CM will maintain a table of subsystem configuration information (called a platform parameter table - PPT) that can be accessed by test software through a set of APIs. OPS CM software also allows users to monitor the configurations of other subsystems in the CLCS. [Upon subsystem termination](#) ~~Once the user has logged off,~~ OPS CM processes will do a preliminary clean up of files on the local subsystem and close out the processes started up by [subsystem initialization.](#) ~~the logged-off user.~~



## 1.2 OPS CM Specifications

### 1.2.1 OPS CM Ground Rules

OPS CM will operate under the following ground rules and assumptions:

- The central CM repository will be located on an Auspex subsystem .
- DDP, CCP and [CCWS](#) subsystems will be SGI computers.
- SCIDs referred to in this document do not include COTS or operating system (OS) software.
  - COTS will be the responsibility of the OS group.
- NFS mounts will be available for use by OPS CM for activity management, and software download to the local subsystems.
- ~~Similar platform types (i.e. DDP, CCP, HCI) will initially be downloaded with identical software configurations.~~
- Gateways will be loaded with unique TCID Gateway tables according to their specified function.
- A temporary read-write area will be provided on each subsystem. ([excluding Gateways](#))

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- [Positional login at the CCWS will be eliminated for the Thor release.](#)
- ~~For Redstone, HCI system services will be initialized at user login.~~
- For ~~Thor~~ **Redstone**, it will be procedural to ensure that the correct SCID for a specific TCID has been loaded, and that the correct versions of the operating system and COTS software have been associated with a specific SCID.
- [The rw\\_local and rw\\_temp directories on each target subsystem will be populated with subdirectories named for each user class.](#)
- **OPS CM has the following dependencies on other CSCIs:**
  - ~~GSE~~ Gateways ([GSE, LDB, CSG, PCM](#))
    - Inputs to the Gateway IDD.
    - Gateway load software for testing.
    - [Upgraded FTP](#)
  - System Build
    - SCID directory structure.
  - Test Build
    - TCID directory structure.
  - [Hardware Architecture](#)
    - [A Master Control CCWS will be designated for each environment \(LCC, HMF, IDE, SDE1, SDE2, SDE-H\). The Master Control workstation will have login capability.](#)
  - [System Control](#)
    - [System Integrity API definition](#)
    - [System Integrity software for testing](#)
  - System Services
    - Application Messaging API definition [remains supported and unchanged.](#)
    - [Conversion from ATM to fast Ethernet is assumed to have no impact on current SCT processes.](#)
    - Application Messaging software for testing.
    - System Messaging API definition.
    - System Messaging software for testing.
    - Network Registration Service (NRS) API definition.
    - Network Registration Service software for testing.
    - Initialization and Termination Service API definition.
    - Initialization and Termination Service software for testing.
    - Local Logging Services API definition.
    - Local Logging Services software for testing.
  - [User Applications](#)
    - [Complete descriptions of which user applications need to be started at initialization, including executable name and location, environment variables, set-up scripts, additional parameters, dependencies on other processes, etc. will be provided prior to scheduled UIT.](#)

## 1.2.2 OPS CM Functional Requirements

The Functional Requirements area is composed of the following sections:

1. File Repository Management - Copies files in the Auspex ~~OPS~~ **OPS** CM Repository [Build Output staging](#) area into the [OPS CM Repository](#) test repositories, promotes test to verified, and performs baseline deletion.
2. Activity Management - Add/modify/delete activity definitions

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3. [RTPS System Software Load & Initialization Download](#) - Download SCID/TCID baselines to RTPS [Subsystems](#)
  - 3.1. [Software Load](#)
  - 3.2. [Software Initialization](#)
  - ~~3.3. [Subsystem Configuration and Initialization](#) - Initializes the system software and positional software on the RTPS Subsystem~~
  - 3.3. Platform Parameter Table - APIs to store and retrieve individual subsystem configuration data.
4. Logging - General logging requirements

## Note:

1. [The term "RTPS Subsystem" includes CCWS , DDP, CCP, and Gateways unless otherwise stated.](#)
2. ["HCI" will continue to be used for the CCWS abbreviation in the directory structures for the build output repositories and OPS CM repositories.](#)

## 1. File Repository Management

- 1.1. OPS CM will provide the following file repositories:
  - a. Verified Application Repository (VAR)
  - b. Unverified Application Repository (UAR)
  - c. Test Build Products Repository (TBPR)
  - d. System Build Repository (SBR)
  - e. Front End Gateway Repository (FEGR)
  - f. User Managed Storage (UMS)

NOTE: For requirements 1.2 - 1.11, TCID refers to the user apps portion only.

- 1.2. OPS CM will provide the capability for authorized users to introduce changes within a single subsystem into an OPS CM SCID test repository.
- 1.3. OPS CM will provide the capability for authorized users to introduce an SCID baseline into a test repository.
- 1.4. [OPS CM will provide the capability for authorized users to introduce a TCID baseline into the OPS CM TCID repository.](#)
- 1.5. OPS CM will provide the capability for authorized users to promote an SCID baseline.
- 1.6. OPS CM will provide the capability for authorized users to promote a TCID baseline.
- 1.7. OPS CM will prevent the user from introducing an SCID baseline into an existing baseline
- 1.8. ~~OPS CM will prevent the user from introducing a TCID baseline into an existing baseline.~~
- 1.9. OPS CM will prevent an unauthorized user from promoting an SCID baseline.
- 1.10. ~~OPS CM will prevent an unauthorized user from promoting a TCID baseline.~~
- 1.11. OPS CM will provide the capability for authorized users to delete an SCID baseline from an OPS CM repository.
- 1.12. ~~OPS CM will provide the capability for authorized users to delete a TCID baseline from an OPS CM repository.~~
- 1.13. [OPS CM will provide a mechanism to copy an SCID baseline onto a single cm-server.](#)

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- 1.14. [OPS CM will provide a mechanism to copy a TCID software baseline onto a single cm-server.](#)
- 1.15. [OPS CM will provide a mechanism to copy a TCID data baseline onto a single cm-server.](#)

## 2. Activity Management

- 2.1. OPS CM will provide a method to manage activities in the CLCS.
- 2.2. OPS CM will provide a graphical CCWS interface for Activity Management.
- 2.3. OPS CM will provide a method for the addition of a new Activity.
- 2.4. OPS CM will provide a method for the modification of an Activity.
- 2.5. OPS CM will provide a method for the deletion of an Activity
- 2.6. OPS CM will provide a method to confirm the deletion of an Activity.
- 2.7. OPS CM will provide a method to designate an Activity as active.
- 2.8. OPS CM will provide a method to designate an Activity as inactive.
- 2.9. OPS CM will only allow the deactivation of an Activity in use upon user override.
- 2.10. OPS CM will provide a method to specify that an Activity requires verified software only.
- 2.11. OPS CM will provide a method to associate an Activity Type to an activity.
- 2.12. OPS CM will provide a method to display the activities that RTPS Subsystems are supporting.
- 2.13. OPS CM will provide a method to define SCID ~~and TCID~~-baselines [for each RTPS subsystem type](#) within an activity.
- 2.14. [OPS CM will provide a method to define a single TCID baseline name for all RTPS subsystems within an activity.](#)

*NOTE: [The following requirements \(2.15-2.19\) are deferred to a later release pending the definition of user classes and allocation to CCWS 's.](#)*

- 2.15. *OPS CM will provide the capability to define RTPS Subsystem groups as download targets.*
- 2.16. *OPS CM will provide the capability to save RTPS Subsystem group definitions.*
- 2.17. *OPS CM will provide the capability to modify RTPS Subsystem groups as download targets.*
- 2.18. *OPS CM will provide the capability to delete RTPS Subsystem groups as download targets.*
- 2.19. *OPS CM will provide the capability to define subsets of subsystems within a RTPS Subsystem group.*
- 2.20. The available Activity Types will be:
  - a. Operations (OPS)
  - b. Simulation (SIM)
  - c. Development (DEV)

## 3. [RTPS System Software Load and Initialization](#)

### 3.1. [RTPS System](#) Software Load

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- a. OPS CM will provide the capability to load a single RTPS Subsystem with an SCID baseline.
- b. OPS CM will provide the capability to load a single RTPS Subsystem with a TCID baseline.
- c. OPS CM will provide the capability to load a single RTPS Subsystem with an SCID baseline and a TCID baseline in a single operation.
- ~~d. OPS CM will provide the capability for an HCI platform to be loaded with user and positional home directories.~~
- d. OPS CM will provide a graphical CCWS interface to allow authorized users to request and execute download functions.
- e. OPS CM will provide the capability to load multiple RTPS Subsystems with an SCID baseline in a single operation.
- f. OPS CM will provide the capability to load multiple RTPS Subsystems with a TCID baseline in a single operation.
- g. OPS CM will provide the capability to load multiple RTPS Subsystems with an SCID baseline and a TCID baseline in a single operation.
- h. OPS CM will check for the existence of a specified SCID on the target subsystem prior to download.
- i. OPS CM will check for the existence of a specified TCID on the target subsystem prior to download.
- j. OPS CM will load the current set of activity definitions as part of the system load for all subsystems.
- k. OPS CM will load the current System Configuration Table (SCT) as part of the system load for all subsystems.
- l. OPS CM, by default, will not perform the download to the target subsystem if the specified baseline already exists on the target subsystem .
- m. OPSCM will provide a method for the user to force downloads of existing baselines on the target subsystem .
- n. OPS CM will set default ownerships and permissions for files downloaded to RTPS Subsystems (as supported by the OS subsystem ).
- o. OPS CM will set special ownerships and permissions for files downloaded to RTPS Subsystems that are specified in a predefined list (as supported by the OS subsystem ).
- p. When a baseline is being overwritten, OPS CM will ensure that any existing baseline files on the target subsystem are removed or completely replaced before the new baseline is loaded.
- q. OPS CM will provide a method to display the current software baseline loads per subsystem .
- r. OPS CM will verify the downloaded software baseline on the RTPS Subsystem .
- s. *OPS CM will allow the user to initiate a software baseline verification.*
- t. OPS CM will set the default selected load to verified software for Activity Types of “OPS”.
- u. OPS CM will provide the capability to load the RTPS Subsystem with unverified software for Activity Types of “OPS”.

## 3.2. RTPS System Software Initialization

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The RTPS Subsystem and Initialization section is composed of the following subsections:

- a. Common
- b. CCWS Subsystems
- c. DDP and CCP Subsystems
- d. Gateway Subsystems

## a. Common

1. OPS CM will provide the capability to initialize system software baselines on RTPS Subsystems.
- ~~2. a. The software initialization of an HCI will be based on login position.~~
2. The software initialization of an RTPS Subsystem will be based on the allocated activity.
3. OPS CM will provide a graphical CCWS interface for authorized users to initialize downloaded RTPS Subsystems.
4. OPS CM will initialize RTPS Subsystems without a user login.
5. OPS CM will initiate the loading of SCTs as part of subsystem initialization.
6. OPS CM will provide the capability to invoke a system startup script to initiate the SCID processes on the RTPS Subsystem (excluding Gateways).
7. OPS CM will provide a method to specify other applications to be started after the system startup script has completed (excluding Gateways).
8. Upon subsystem termination, OPS CM will terminate all SCID processes started at configuration time (excluding Gateways).
9. Upon subsystem termination, OPS CM will terminate all ~~positional~~ TCID application processes started at configuration time (excluding Gateways).
10. Upon subsystem termination, OPS CM will delete files stored in the subsystem's local temporary storage- (excluding Gateways).
11. Subsystem termination will be performed ~~at user logout, but not shift change, and~~ prior to subsystem download and prior to subsystem initialization. (excluding Gateways).

## b. CCWS Subsystems

1. OPS CM will use standard operating system resource files to assist in the initialization of the CCWS subsystem .
2. OPS CM will provide the user with a method to append selected ~~positional~~ modifications to the standard operating system resource files based on user class.
3. OPS CM will provide the capability to initialize a single CCWS subsystem .
4. OPS CM will provide the capability to initialize multiple CCWS subsystems to the same activity in a single operation.
- ~~5. a. OPS CM will support the initialization of the DDP/CCP/HCI combined debug configuration. Refer to Razor Issue # 108.~~
- ~~5. a. Upon Shift Change, OPS CM will terminate all processes owned by the previous user.~~
- ~~5. a. Upon Shift Change, OPS CM will initiate a user specific start-up script for the new user (if provided).~~

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## Note:

OPS CM will start requested system services and approved user applications at initialization. Specific startup requirements will be tracked through dependency forms.

### c. DDP Subsystems

1. OPS CM will initialize DDP subsystem specific applications
2. OPS CM will provide a method to report the current status of each DDP subsystem .
3. OPS CM will provide a graphical CCWS interface for authorized users to configure and de-configure a given set of DDP subsystems.

### d. CCP Subsystems

1. OPS CM will initialize CCP subsystem specific applications ~~based on subsystem type.~~
2. OPS CM will provide a method to report the current status of each ~~CCP and DDP~~ subsystem .
3. OPS CM will provide a graphical CCWS- interface for authorized users to configure and de-configure a given set of ~~CCP and DDP~~ subsystems.
4. ~~a. OPS CM will support the initialization of the DDP/CCP combined debug configuration.~~

### e. Gateway Subsystems

1. OPS CM will report the current mode, TCID and SCID baselines of the selected Gateway.
2. OPS CM will provide a graphical CCWS interface to issue commands to initialize, start, and terminate Gateway processes.
3. OPS CM will provide a graphical CCWS interface to request and display Gateway status information.

## 3.3. **Platform Parameter Table (PPT)**

- a. OPS CM will manage the following minimum data set on the local subsystem (excluding Gateways):
  1. Platform Name: Uniquely identifies a specific instance of the subsystem entity.
  2. ~~User Name: The ASCII identifier of the user currently logged onto the platform.~~
  2. Position Name: The ASCII Position ID ~~of the user~~ currently assigned to ~~logged onto~~ the subsystem .
  3. Activity: The currently configured Activity name.
  4. SCID: The current SCID baseline ID loaded on the \_subsystem .
  5. TCID: The current TCID baseline ID loaded on the RTPS subsystems.
  6. Tail ID: The vehicle ID.
  7. Flight Number: The shuttle flight number.

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- ~~8. Responsible System (RSYS): The RSYS associated with the Group/Position ID of the user currently logged onto the subsystem.~~
8. End Item Location: The location of the end item under test (OPF1, VAB1, PAD A, etc.).
9. [Gateway list used by the current activity definition including Gateway name, type, SCID, and TCID.](#)
10. [Number of Gateways defined in the current activity.](#)
- b. OPS CM will provide an API to allow applications to read the entire Platform Parameter Table.
- c. OPS CM will provide an API to allow applications to read a single entry in the Platform Parameter Table. [\(Excluding gateway records. See below\)](#)
- ~~d. OPS CM will provide an API to set the user name and positional ID in the Platform Parameter Table.~~
- d. [OPS CM will provide an API to retrieve the set of Gateway records stored in the Platform Parameter Table.](#)
- e. OPS CM will provide the following PPT data on downloaded gateway subsystems:
  1. Activity: The currently configured Activity name.
  2. SCID: The current SCID baseline ID loaded on the subsystem .
  3. TCID: The current TCID baseline ID loaded on the subsystem .
  4. Tail ID: The vehicle ID.
  5. Flight Number: The shuttle flight number.
  6. End Item Location: The location of the end item under test (OPF1, VAB1, PAD-A, etc.).
  7. Test Location: Post [Redstone Thor](#)
  8. Activity Number: Post [Redstone Thor](#)

## 4. Logging

- 4.1. OPS CM will log requests for OPS CM functions.
- 4.2. OPS CM will log the results of user specified requests for its functions.
- 4.3. OPS CM logging will be in Human understandable ASCII format.
- 4.4. OPS CM will log the RTPS Platform Parameter Table.
- 4.5. OPS CM will log error events.
- 4.6. OPS CM will provide a system message when a subsystem initialization completes successfully.
- 4.7. [OPS CM will provide a system message when a subsystem initialization completes unsuccessfully.](#)
- ~~4.8. OPS CM will provide a system message when a platform initialization completes unsuccessfully.~~
- 4.8. OPS CM will log Health and Status of OPS CM functions including:
  - a. Initiation of an OPS CM function.
  - b. Initiation of selected stages of an OPS CM function.
  - c. Successful completion of an OPS CM function.
  - d. Unsuccessful completion of an OPS CM function.

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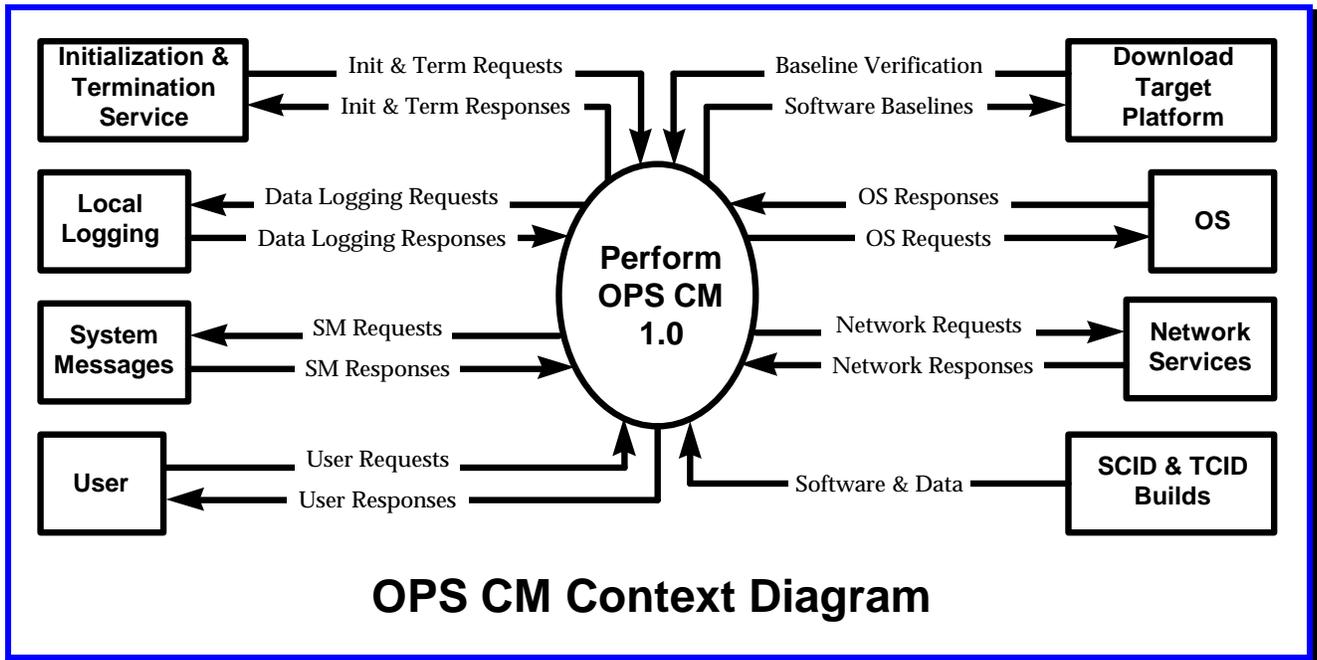
## 1.2.3 OPS CM Performance Requirements

TBD

## 1.2.4 OPS CM Interfaces

OPS CM interfaces with the CLCS user, system and test software baselines, target subsystems and System Services software. These interfaces are shown in the following context diagram.

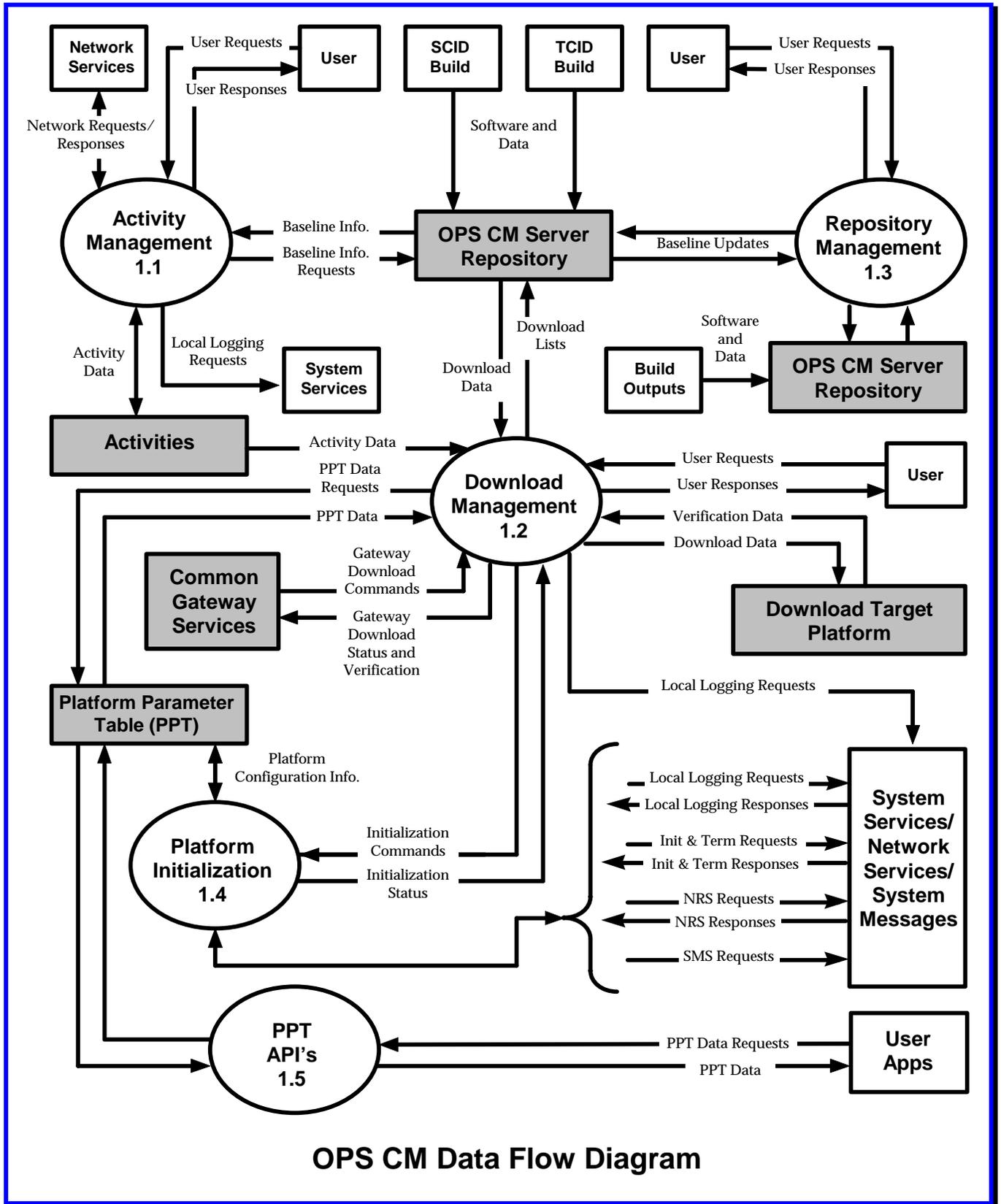
# OPSCM Software Requirements



## 1.2.5 OPS CM Data Flow Diagram

The SCID and TCID Builds are distributed from the OPS CM Repository on the Auspex to the OPS CM Servers in each of the development environments. These OPS CM Servers distribute the appropriate software to the RTPS Subsystems in their respective development environments.

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**OPSCM Data Flow Diagram**

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